

Adaequare Software Engineering

Prototyping in Product Engineering

*Importance of Prototyping/POC for your
product*

Table of Contents

Executive Summary	3
Introduction	4
Prototype/POC Efforts	5
Types of Prototype	5
Questions or Issues to be Answered by the Prototype	5
Prototyping Objectives.....	6
Relationship of This Prototype to Similar Prototyping Efforts	6
Prototype Completion Criteria.....	6
Method for Evaluating Results.....	6
Disposition of Results	7
Documentation and Archiving of the Prototype	7
Estimated Prototyping Effort and Resources Required	7
Prototype Development Schedule	7
About Adaequare	8

Executive Summary

Product ideas can be unfettered, unhindered and yet at times, far from reality. Prototyping and Proof of Concept (POC) can help validate the ideas and determine what is feasible and what is not. This prototype/POC represents one or more aspects of the product under development, and is intended to provide information to aid in the development of the product.

Introduction

Prototype/POC efforts are by no means small and how effectively you can leverage the prototyping/POC efforts to build value into your full scale product development plan, is the subject of this document.

This whitepaper will:

- Document the objectives of the prototyping effort
- Identify the type of prototype
- Define the specific questions or issues about which the prototyping effort will provide what type of information
- Estimate the size and resource required to complete the prototype
- Estimate the schedule under which the prototype will be developed
- Define the criteria upon which the prototype will be declared to have served its purpose
- Identify the method by which the lessons learned from the prototype will be evaluated
- Define how the lessons learned will be used

Prototype/POC Efforts

Types of Prototype

Classify the planned prototype in terms of its purpose and proximity in the product life cycle. Examples include, but are not limited to:

- Proof of Concept Prototype: Usually very early in the life cycle when focus is on external functionality, behavior, and user interface. Often created with story board approach for the purpose of working with prospective users to articulate and negotiate user requirements.
- Architecture and Data Modeling: Often created to assist in translating requirements into system level design, and to identify architecture and data model issues early in product design activities.
- Technical Feasibility Prototype: Usually created during product design to select best design approach from among two or more options. A typical example is when system internal functions are modeled - execution is simulated and analyzed for results, such as performance, consumption of resources, error recovery algorithms, etc.

Questions or Issues to be Answered by the Prototype

Describe the set of product questions or issues to be addressed by the prototyping effort. Examples include:

- What are desirable user interface, features, and capabilities for the planned product from the users' point of view?
- How will the product under development, fit into the users' business process?
- In what way might the product require changes in the users' business process?
- What is the best way to structure the product design to fit the existing product line architecture?
- In what way might the existing architecture need to be modified to support necessary new product features, capabilities, or technologies?
- What are optimal database structures and algorithms for the new product?
- What are the cost/performance tradeoffs that must be considered in making design decisions?

Prototyping Objectives

List the specific objectives to be attained by the prototyping effort such as:

- To create a user-validated set of screens and scenarios to be supported by the product
- To identify specific changes in the business process that will be required by the new product
- To identify product migration issues to be addressed in the deployment of the product
- To understand and define the effect of possible modifications to the architecture for this product on strategic directions for future products
- To determine the optimal database structure for this product

Relationship of This Prototype to Similar Prototyping Efforts

Review the results of other related prototyping efforts if any and identify elements or lessons learned that might benefit or be transferable to this prototyping effort. Look for opportunities to use previous prototype results to reduce the effort required, or re-enforce the findings, for this prototype.

Prototype Completion Criteria

Identify specific conditions under which this prototyping effort will be declared complete. Consider factors such as:

- Can the stated objectives of the prototyping effort be separated into those that are mandatory and must be met, and those which are desirable to meet?
- Can a point of diminishing returns be defined, beyond which the yield of information from continued refinement of the prototype will not be justified in terms of schedule or resource impact?
- Is there a window of opportunity, beyond which continued yield of information from the prototyping effort will not be timely or useful to the development project?

Method for Evaluating Results

How will the results of the prototyping effort be evaluated?

- Through reviews among technical peers and stakeholders?
- Through reviews by the management of the project?
- Through reviews by prospective users of the product?

Disposition of Results

Describe how the lessons learned from the prototyping effort will be put to use on the product under development. List the individuals and organizations that are to receive the results of the prototyping effort.

- Which individuals and organizations require the information gained from the prototyping effort in order to make business decisions or Technical decisions?
- Which stakeholders are affected by the conclusions drawn from analysis of the prototype?
- Are there other projects that might be dependent upon, or might benefit from the knowledge of the technical conclusions reached from analysis of the prototype result?
- Are there other peer groups or individuals that might benefit from the "lessons learned" experience report about how to conduct a prototyping effort?

Documentation and Archiving of the Prototype

State where and how the prototype and associated documentation will be retained for future reference by other projects.

- A local project archive file
- A local or global library of templates, guidelines, procedures, prototyping experiences, and other lessons learned documents (a Process Asset Library)

Estimated Prototyping Effort and Resources Required

Include an estimate of people effort and resources required for the prototyping effort. Consider using a Work Breakdown Structure, or an equivalent task-level of detail as a foundation for the estimate.

Prototype Development Schedule

Spread the planned development and evaluation of the prototype across the calendar. Include checkpoints and milestones as appropriate. Incorporate the prototyping plan into the overall project plan. Include prototyping progress reporting in the overall project management reviews as appropriate. Modify the project plan, if necessary, to accommodate the prototyping effort, and negotiate the changes with affected stakeholders.

A successful prototype/POC provides opportunities for defining product design and helps in accurately estimating the development efforts. Also, it helps building confidence with the product audience and establishes visibility across the organization.

About Adaequare

Established in 2001, Adaequare is a CMMi Level 3 Certified software services company specializing in product development, data and test engineering. We assist IT teams in delivering high performing solutions to the business with faster time to market and high returns on investment.

With a global presence across 3 different locations, we focus on medium to large businesses and encapsulate consulting, results driven engagement and delivery models which are important to our target customers.

We work with several companies in USA such as CoreLogic, Tria Beauty and have been either a dedicated IT partner or a preferred IT partner. We have offshore delivery centers in India that support our customers in product development, Tier 1 and 2 support and testing with over 400+ resources.

This White Paper is for informational purposes only. ADAEQUARE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS WHITE PAPER.

©Copyright 2013 Adaequare. All rights reserved. Reproduction in any manner whatsoever without the express written permission of Adaequare is strictly forbidden. For more information, contact Adaequare.

Information in this document is subject to change without notice.